# MAXDATA PLATINUM Blade Server

## User's Manual

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# 1 Safety Information

This document applies to MAXDATA PLATINUM Server Boards, MAXDATA PLATINUM Server Chassis (pedestal and rack-mount) and installed peripherals. To reduce the risk of bodily injury, electrical shock, fire, and equipment damage, read this document and observe all warnings and precautions in this guide before installing or maintaining your MAXDATA PLATINUM server product.

In the event of a conflict between the information in this document and information provided with the product or on the website for a particular product, the product documentation takes precedence.

Your server should be integrated and serviced only by technically qualified persons.

You must adhere to the guidelines in this guide and the assembly instructions in your server manuals to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products/components will void the UL Listing and other regulatory approvals of the product, and may result in noncompliance with product regulations in the region(s) in which the product is sold.

## Safety Warnings and Cautions

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout the documentation and may be marked on the product and/or the product packaging.

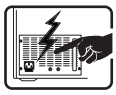
**Table 1. Safety Warnings and Cautions**

| | |
|---|---|
| | Indicates potential hazard if indicated information is ignored |
| | Indicates shock hazard that result in serious injury or death if safety instruction are not followed |
| | Indicates hot components and surfaces |
| | Indicates electrostatic discharge cautions |
| | Indicates do not touch fan blades, may result in injury |
| | Indicates to unplug all AC power cord(s) to disconnect AC power |

## Intended Application Uses

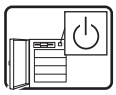
This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other product categories and environments (such as medical, industrial, residential, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

## General Warnings



The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.

Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC cord for each supply.



The DC push-button on/off switch on the front panel does not turn off system AC power. To remove power from the system, you must unplug each AC power cord from the wall outlet or power supply.

Ensure that the system is disconnected from its power source and from all telecommunication links, networks, and modem lines whenever the chassis cover is to be removed. This may require disconnecting multiple power cords. Do not operate the system with the cover removed.

A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.

Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

Depending on the weight of the product, two people together should lift it.

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean and free of airborne particles (other than normal room dust).
- Well ventilated and away from sources of heat including direct sunlight.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cords, because they serve as the product's main power disconnect.

## Site Selection

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean, dry, and free of airborne particles (other than normal room dust).
- Well-ventilated and away from sources of heat including direct sunlight and radiators.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cord(s), because they serve as the product's main power disconnect.

## Equipment Handling Practices

Reduce the risk of personal injury or equipment damage:

- Conform to local occupational health and safety requirements when moving and lifting equipment.
- Use mechanical assistance or other suitable assistance when moving and lifting equipment.
- To reduce the weight for easier handling, remove any easily detachable components.

**CAUTION**

The power button, indicated by the stand-by power marking, DOES NOT completely turn off the system AC power, 5 V standby power is active whenever the system is plugged in. To remove power from system, you must unplug the AC power cord from the wall outlet. Your system may use more than one AC power cord. Make sure all AC power cords are unplugged. Make sure the AC power cord(s) is/are unplugged before you open the chassis, or add or remove any non hot-plug components.

Do not attempt to modify or use an AC power cord if it is not the exact type required. A separate AC cord is required for each system power supply.

Some power supplies in MAXDATA PLATINUM Servers use Neutral Pole Fusing. To avoid risk of shock use CAUTION when working with power supplies that use Neutral Pole Fusing.

The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the server.

To avoid risk of electric shock, turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it.

## Power Cord Warnings

If an AC power cord was not provided with your product, purchase one that is approved for use in your country.

**CAUTION**

To avoid electrical shock or fire, check the power cord(s) that will be used with the product as follows:

- Do not attempt to modify or use the AC power cord(s) if they are not the exact type required to fit into the grounded electrical outlets
- The power cord(s) must meet the following criteria:
  - The power cord must have an electrical rating that is greater than that of the electrical current rating marked on the product.
  - The power cord must have safety ground pin or contact that is suitable for the electrical outlet.
- The power supply cord(s) is/are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.
- The power supply cord(s) must be plugged into socket-outlet(s) that is /are provided with a suitable earth ground.

## System Access Warnings

**CAUTION**

To avoid personal injury or property damage, the following safety instructions apply whenever accessing the inside of the product:

- Turn off all peripheral devices connected to this product.
- Turn off the system by pressing the power button to off.
- Disconnect the AC power by unplugging all AC power cords from the system or wall outlet.
- Disconnect all cables and telecommunication lines that are connected to the system.
- Retain all screws or other fasteners when removing access cover(s). Upon completion of accessing inside the product, refasten access cover with original screws or fasteners.
- Do not access the inside of the power supply. There are no serviceable parts in the power supply. Return to manufacturer for servicing.
- Power down the server and disconnect all power cords before adding or replacing any non hot-plug component.
- When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing the power supply from the server.

**CAUTION**

If the server has been running, any installed processor(s) and heat sink(s) may be hot. Unless you are adding or removing a hot-plug component, allow the system to cool before opening the covers. To avoid the possibility of coming into contact with hot component(s) during a hot-plug installation, be careful when removing or installing the hot-plug component(s).

**CAUTION**

To avoid injury do not contact moving fan blades. If your system is supplied with a guard over the fan, do not operate the system without the fan guard in place.

## Rack Mount Warnings

The equipment rack must be anchored to an unmovable support to prevent it from tipping when a server or piece of equipment is extended from it. The equipment rack must be installed according to the rack manufacturer's instructions.

Install equipment in the rack from the bottom up, with the heaviest equipment at the bottom of the rack.

Extend only one piece of equipment from the rack at a time.

You are responsible for installing a main power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server(s).

To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed in it.

## Electrostatic Discharge (ESD)

**CAUTION**

ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground – any unpainted metal surface – on your server when handling parts.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface

## Other Hazards

### Battery Replacement

**CAUTION**

There is the danger of explosion if the battery is incorrectly replaced. When replacing the battery, use only the battery recommended by the equipment manufacturer.

Dispose of batteries according to local ordinances and regulations.

Do not attempt to recharge a battery.

Do not attempt to disassemble, puncture, or otherwise damage a battery.

### Cooling and Airflow

**CAUTION**

Carefully route cables as directed to minimize airflow blockage and cooling problems. For proper cooling and airflow, operate the system only with the chassis covers installed. Operating the system without the covers in place can damage system parts. To install the covers:

1. Check first to make sure you have not left loose tools or parts inside the system.
2. Check that cables, add-in boards, and other components are properly installed.
3. Attach the covers to the chassis according to the product instructions.

### Laser Peripherals or Devices

⚠ **CAUTION**

To avoid risk of radiation exposure and/or personal injury:

- Do not open the enclosure of any laser peripheral or device
- Laser peripherals or devices have are not user serviceable
- Return to manufacturer for servicing

# 2 Introduction

Your MAXDATA PLATINUM BladeBase is a high-density, high-performance rack-mounted server system developed for medium-to-large businesses. It has 14 blade bays, making it ideally suited for networking environments that require a large number of high-performance servers in a smaller amount of space. The MAXDATA PLATINUM BladeBase provides common resources that are shared by the blade servers, such as power, cooling, system management, network connections, and I/O (diskette drive, CD-ROM drive, ports for USB, keyboard, video, mouse, and network interfaces). The use of common resources reduces the size of the blade servers, minimizes cabling, and reduces the time/likelihood of resources sitting idle.

Performance, ease of use, reliability, and expansion capabilities were key considerations during the design of the MAXDATA PLATINUM BladeBase. These design features make it possible for you to customize the system hardware to meet your needs today, while providing flexible expansion capabilities for the future.

This Installation and User's Guide provides information to:

- Set up and cable your MAXDATA PLATINUM BladeBase
- Start and configure your MAXDATA PLATINUM BladeBase
- Install options
- Perform basic troubleshooting of your MAXDATA PLATINUM BladeBase

Packaged with the Installation and User's Guide are software CDs that help you to configure and manage the MAXDATA PLATINUM BladeBase.

This Installation and User's Guide and other publications that provide detailed information about your MAXDATA PLATINUM BladeBase are provided in Portable Document Format (PDF) on the MAXDATA PLATINUM BladeBase Resource CD.

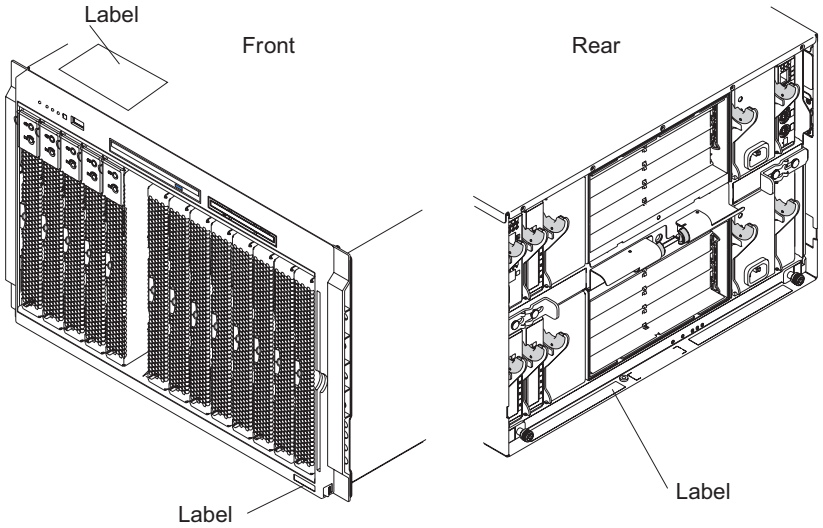



**Figure 1. Chassis Front and Rear**

A set of user labels comes with each blade server. Write appropriate identifying information a label and place it on the MAXDATA PLATINUM BladeBase bezel just below the blade server, as shown in the following illustration.

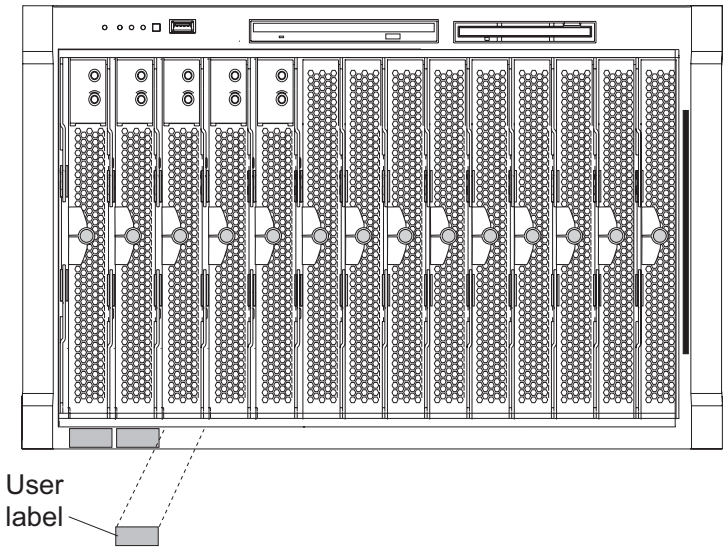



**Figure 2. Placing of User Label**

⚠ **IMPORTANT**

Do not place the label on the blade server itself and do not block the ventilation holes on the blade server.

## Shipping Notices

Do not ship the MAXDATA BladeBase chassis with blade servers installed. Ship the MAXDATA PLATINUM BladeBase and blade servers separately, in the original packaging, to avoid damage.

# Features and Specifications

The following table provides a summary of the features and specifications for your MAXDATA BladeBase.

**Table 2. Features and Specifications**

| Feature | Description |
|---|---|
| **Media tray (on front)** | • Diskette drive: 1.44 MB<br>• CD-ROM drive: IDE<br>• Universal Serial Bus (USB) v1.1 port<br>• Front system LED panel |
| **Module bays (on rear)** | • Four hot-plug 220 V power module bays<br>• Two hot-swap management module bays<br>• Four hot-plug I/O module bays<br>• Two hot-swap blower bays |
| **Blade bays (on front)** | 14 hot-plug blade bays |
| **Redundant cooling** | Two variable-speed hot-swap blowers |
| **Power modules** | • Standard: Two 1800 W or greater 220 V (200-240 V AC) hot-swap power modules<br>– Power modules 1 and 2 supply 12 V to all modules and to blade bays 1 through 6<br>– Power modules 1 and 2 provide redundancy to each other<br>• Maximum: Four, 1800-watt or greater<br>– Power modules 1 and 2 supply 12 V to all modules and to blade bays 1 through 6<br>– Power modules 3 and 4 supply 12 V to blade bays 7 through 14<br>– Power modules 1 and 2 provide redundancy to each other<br>– Power modules 3 and 4 provide redundancy to each other |
| **I/O modules** | • Standard: None<br>• Maximum: Four |
| **Management module** | • Standard: One hot-plug management module providing the following features:<br>– System-management functions for the MAXDATA PLATINUM BladeBase<br>– Video port (analog)<br>– PS/2 keyboard port<br>– PS/2 mouse port<br>– 10/100 Mbps Ethernet remote management connection<br>• Maximum: Two hot-plug management modules, one active, one redundant |
| **Upgradeable microcode** | • Management module firmware<br>• I/O module firmware (not all I/O module types)<br>• Blade server service processor firmware |
| **Security features:** | • Login password for remote connection<br>• Secure socket layer (SSL) security for remote management access |
| **Predictive Failure Analysis (PFA) alerts** | • Blowers<br>• Blade-dependent features |

**(continued)**

**Table 2. Features and Specifications (Continued)**

| Feature | Description |
|---|---|
| **Size** | • Height: 304.2 mm (12.25 in. or 7 U)<br>• Depth: 711.2 mm (28 in.)<br>• Width: 444 mm (17.5 in.) |
| **Weight** | • Fully configured with modules and blades: Approx. 108.86 kg (240 lb.)<br>• Fully configured without blades: Approx. 44.91 kg (99 lb.) |
| **Acoustical noise emissions** | • Without acoustics module option:<br>– Sound power, idle: 7.4 bels maximum<br>– Sound power, operating: 7.4 bels maximum<br>• With acoustics module option:<br>– Sound power, idle: 6.9 bels maximum<br>– Sound power, operating: 6.9 bels maximum |
| **Environment** | • Air temperature:<br>– MAXDATA PLATINUM BladeBase on: 10 to 35 °C (50 to 95 °F). Altitude: 0 to 914 m (3000 ft)<br>– MAXDATA PLATINUM BladeBase on: 10 to 32 °C (50 to 89.6 °F). Altitude: 0 m to 2134 m (0 ft to 7000 ft).<br>– BladeBase off: -40 to 60 °C (-40 to 140 °F).<br>• Humidity:<br>– Server on or off: 8 % to 80 % |
| **Electrical input** | • Sine-wave input (50-60 Hz single-phase) required<br>• Input voltage:<br>– Minimum: 200 V AC<br>– Maximum: 240 V AC |
| **Heat output** | Approximate heat output in British thermal units (Btu) per hour<br>• Minimum configuration: 1461 Btu/hour (428 watts)<br>• Maximum configuration:<br>– 4 1800-watt power supplies: 13,654 Btu/hour (4000 W)<br>• For all other power supplies, see the documentation that comes with the power supply. |

### NOTE

For details about the MAXDATA PLATINUM BladeBase port specifications, see "Input/Output Connectors" (chapter 3).

### NOTE

For information on which types of I/O modules can be installed in which I/O-module bays, see "I/O Modules" (chapter 3).

### NOTE

The operating system in the blade server must provide USB support for the blade server to recognize and use the keyboard, mouse, CD-ROM drive and diskette drive. The MAXDATA PLATINUM BladeBase uses USB for internal communication with these devices.

# What Your MAXDATA PLATINUM BladeBase Offers

The design of your MAXDATA PLATINUM BladeBase takes advantage of advancements in server technology. It provides up to 14 functionally separate servers and their shared resources in a single unit/chassis. Your MAXDATA PLATINUM BladeBase combines:

### Innovative Technology

Proven innovative technologies to build powerful, scalable, reliable Intel®-Processor-based servers. The technology includes features such as Predictive Failure Analysis (PFA) and Real Time Diagnostics.

### Expansion Capabilities

You can add blade servers to the MAXDATA PLATINUM BladeBase as needed, up to a maximum of 14 blade servers.

Some blade servers have connectors for options that add capabilities to the blade server, such as an I/O expansion card to add a network interface, or a storage expansion unit to add SCSI hard disk drives.

**NOTE**

When any blade server or option is in blade bay 7 through 14, 4 power modules are required.

### Hot-swap/Hot-plug Capabilities

The front bays on the MAXDATA PLATINUM BladeBase are hot-plug blade bays. The rear switch and management bays on the MAXDATA PLATINUM BladeBase are hot-plug module bays. You can add, remove or replace blade servers, management modules, or I/O modules in hot-plug bays without removing power from the BladeBase by first ensuring the module is not in use by the system (i.e., with no active software or applications running). The rear blower and power supply bays on the MAXDATA PLATINUM BladeBase are hot-swap module bays. You can add, remove or replace the power or blower modules from the MAXDATA PLATINUM BladeBase without first removing power from the MAXDATA PLATINUM BladeBase.

**ATTENTION**

To maintain proper system cooling, each unoccupied bay must contain a filler blade or filler module.

### Redundancy Capabilities

The redundant components in the rear of your MAXDATA PLATINUM BladeBase enable continued operation if one of the components fails.

- **Power modules and blowers:** Normally, the redundant power modules and blowers share the load. If one of the power modules or blowers fails, the non-failing power module or blower handles the entire load. You can then replace the failed blower or power module without shutting down the MAXDATA PLATINUM BladeBase.
- **Management modules:** Only one management module will be active at a time. If the active management module fails, the secondary, or redundant, management module becomes the active management module, containing current BladeBase configuration and status information. You can then replace the failed management module without shutting down the MAXDATA PLATINUM BladeBase.

### Redundant Network Connection Capabilities

Configuring a pair of Ethernet switch modules in I/O-module bays 1 and 2, identically, provides support for Ethernet failover configured on blade servers. If the I/O expansion options in your blade servers can be configured for failover, configuring a pair of switch modules in I/O-module bays 3 and 4, identically, provides support for the failover configured on the I/O expansion options.

Other network-interface I/O expansion options can have similar capability for redundant network connections. See the documentation that comes with your I/O expansion and switch module options for more information about configuring for redundant network connections.

### System Management Capabilities

Your MAXDATA PLATINUM BladeBase comes with a service processor in the management module. This service processor, in conjunction with the system-management firmware that is provided with your MAXDATA PLATINUM BladeBase and the service processor in each blade server, enables you to remotely manage the BladeBase components, and the blade servers. The management module also multiplexes the USB, keyboard, mouse, and video ports across the multiple blade servers.

The service processor in each blade server provides blade server system monitoring, event recording, and alert capability.

### Network Environment Support

Your MAXDATA PLATINUM BladeBase supports up to two Ethernet compatible I/O modules (switch modules), for blade server communication with the network. Each I/O module provides one internal connection to each blade server, up to 14 internal connections per I/O module.

The MAXDATA PLATINUM BladeBase also supports two additional switch modules, for a total of four switch modules. The two additional switch modules support the network interface on the optional I/O expansion card installed on one or more blade servers in the MAXDATA PLATINUM BladeBase.

Each of these two additional I/O modules provides one internal connection to the optional I/O expansion card, up to 14 internal connections per I/O module.

**NOTE**

The two additional I/O modules must be compatible with the network interface on the optional I/O expansion cards in the blade servers.

## Reliability, Availability, and Serviceability

Three of the most important features in server design are reliability, availability, and serviceability (RAS). These factors help to ensure the integrity of the data stored on your blade server; that your blade server is available when you want to use it; and that should a failure occur, you can easily diagnose and repair the failure with minimal inconvenience.

The following is a list of some of the RAS features that your MAXDATA PLATINUM BladeBase supports:

- Shared key components, such as power, cooling, and I/O
- All components serviced from the front or rear of the chassis
- Automatic error retry and recovery
- Automatic restart after a power failure
- Built-in monitoring for blower, power, temperature, and voltage
- Built-in monitoring for module redundancy
- Error codes and messages
- Fault-resistant startup
- Remote system management through the management module
- Remote management module firmware upgrade
- Remote upgrade of blade server service processor microcode
- Built-in self-test (BIST)
- Predictive Failure Analysis (PFA) alerts
- Redundant components
  - Cooling fans (blowers)
  - Power modules
- Hot-swap components
  - Cooling fans (blowers)
  - Power modules
- Hot-plug components
  - Blade servers
  - Media tray
  - I/O Modules
  - Management modules
- System error logging
- Automatic system inventory at startup

# Major Components of the MAXDATA PLATINUM BladeBase

The following illustration shows the locations of major components in your MAXDATA PLATINUM BladeBase.

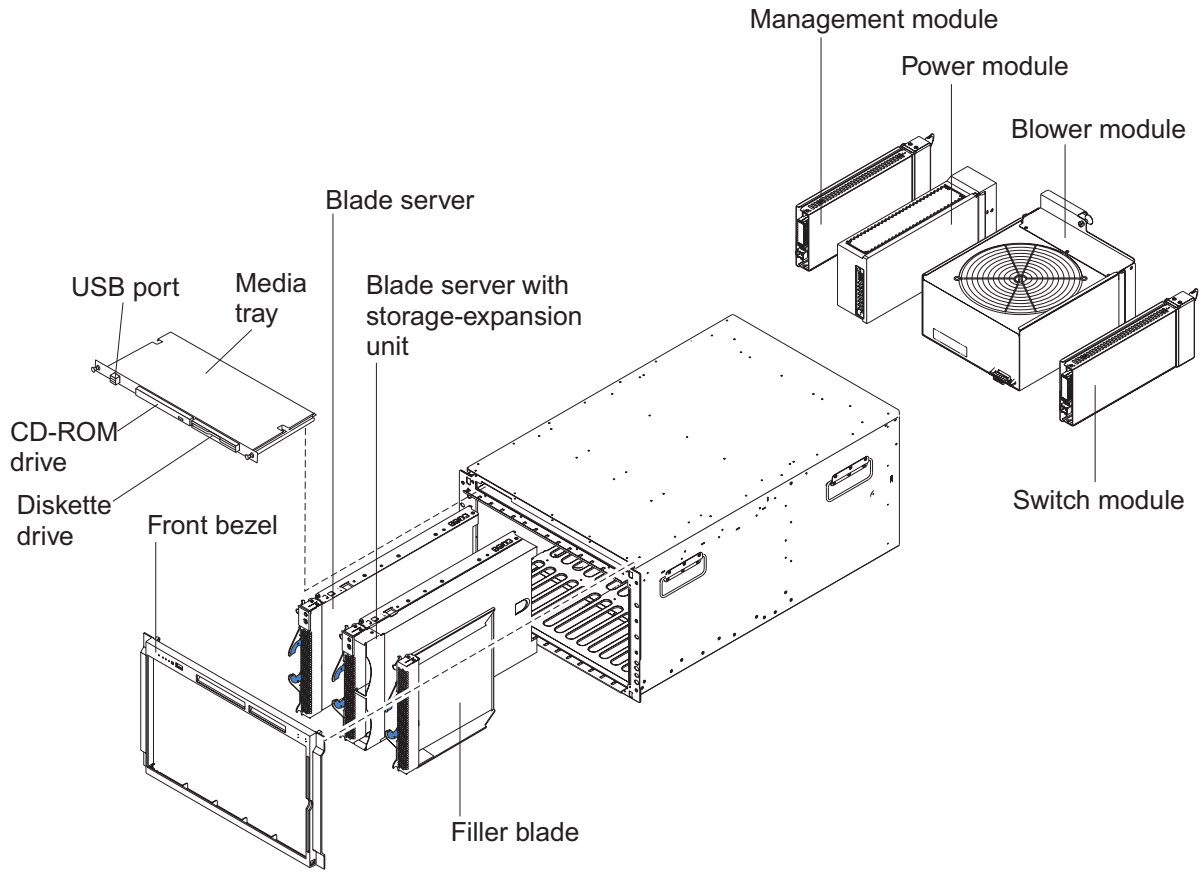



**Figure 3. Major Components of the MAXDATA PLATINUM BladeBase**

### NOTE

The illustrations in this document might differ slightly from your hardware.

### ATTENTION

To maintain proper system cooling, each module bay must contain either a module or a filler module; each blade bay must contain either a blade server or a filler blade.

## Front View

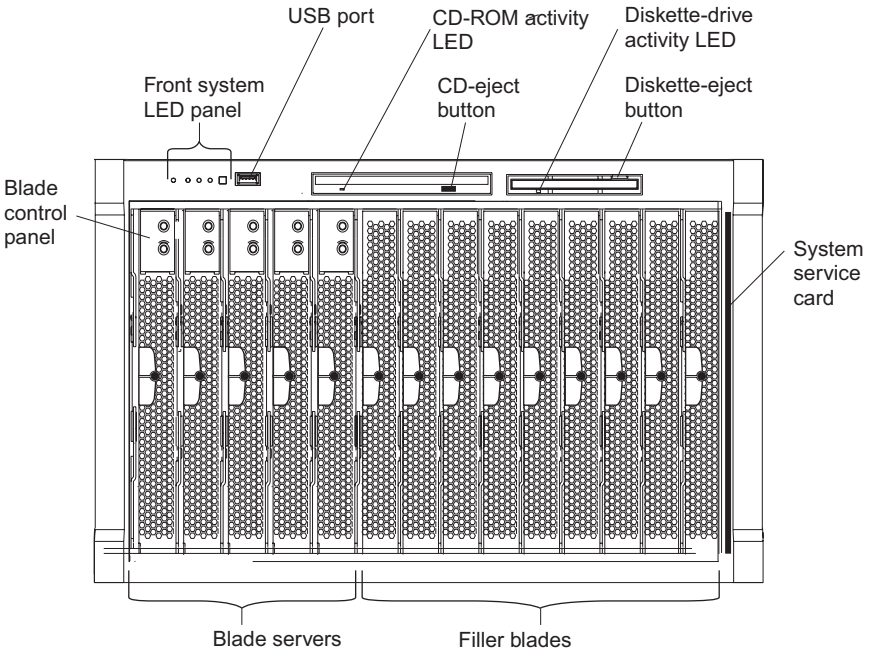



**Figure 4. Front View**

See chapter 5: "Components, Controls, and LEDs" for details about these components and indicators.

## Rear View

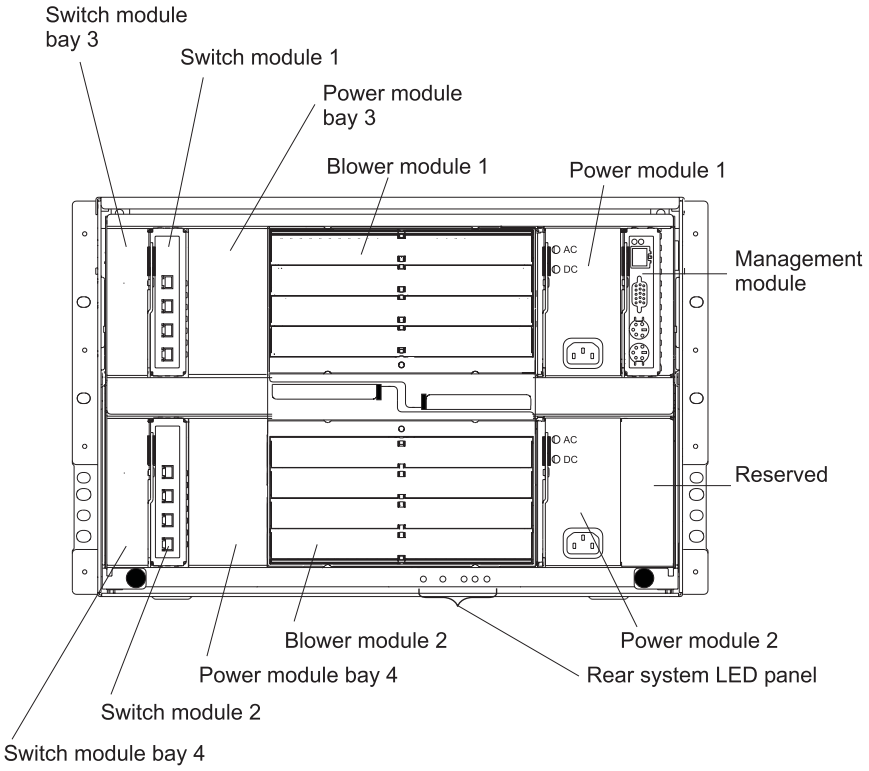



**Figure 5. Rear View**

See chapter 5: "Components, Controls, and LEDs" for details about these components and indicators.

# 3 Installing Options

This chapter provides instructions for adding options to your MAXDATA PLATINUM BladeBase. Option removal instructions are also provided in case you need to remove one option to install another.

## Installation Guidelines

Before you begin to install options in your MAXDATA PLATINUM BladeBase, read the MAXDATA PLATINUM Server Boards and MAXDATA PLATINUM BladeBase book included on the BladeBase Resource CD:

- Read chapter 1: "Safety Information", and also "Installation Guidelines" and "Handling Static-Sensitive Devices" in chapter 3. This information will help you work safely with your MAXDATA PLATINUM BladeBase and options.
- The green colour on components and labels in your chassis identifies hot-swap or hot-plug components. You can install or remove hot-swap modules and, with some restrictions, hot-plug blade servers while the chassis is running. For complete details about installing or removing a hot-swap or hot-plug components, see the detailed information in this chapter.
- The blue colour on components and labels identifies touch points where you can grip a component, move a latch, and so on.
- You do not need to disconnect the chassis from power to install or replace any of the hot-swap modules on the rear of the MAXDATA PLATINUM BladeBase. You need to shut down the operating system and turn off a hot-plug blade server on the front of the chassis before removing the blade server, but you do not need to shut down the MAXDATA PLATINUM BladeBase itself.

## System Reliability Considerations

To help ensure proper cooling and system reliability, make sure that:

- Each of the module bays on the rear of the MAXDATA PLATINUM BladeBase has either a module or filler module installed.
- Each of the blade bays on the front of the MAXDATA PLATINUM BladeBase has either a blade server or filler blade installed.
- Each of the drive bays in a blade server storage expansion option has either a hot-swap drive or a filler panel installed.
- A removed hot-swap module, blade server, or drive is replaced within 1 minute of removal.
- Cables for the option modules are routed according to the illustrations and instructions in this document.
- A failed blower is replaced as soon as possible, to restore cooling redundancy.

## Handling Static-Sensitive Devices

**ATTENTION**

Static electricity can damage electronic devices and your system. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the system unit for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it directly into the system unit without setting the device down. If it is necessary to set down the device, place it back into its static-protective package. Do not place the device on your system unit or on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

# Installing and Removing Modules

The procedures for installing or removing a module on the MAXDATA PLATINUM BladeBase are nearly identical for all modules except the blower modules. To install or remove a blower module, see the MAXDATA PLATINUM BladeBase Hardware Maintenance Manual and Troubleshooting Guide on the BladeBase Resource CD.

Each module is keyed so that it can only be inserted in the appropriate bay. You can insert an I/O module only in an I/O-module bay, for example. In addition, most modules must be installed in a specific sequence or under specific circumstances.

### The MAXDATA PLATINUM BladeBase Modules

The standard MAXDATA PLATINUM BladeBase contains the following hot-swap modules: two power modules, a management module, and two blower modules. See "Rear View" (chapter 2) for the location of each module. These modules supply common functions to the blade servers that are installed in the blade bays at the front of the chassis.

The chassis and the management module supply I/O resources (diskette drive, CD-ROM drive, USB port, keyboard, video, and mouse) which are used by all the blade servers, but available to only one blade server at a time. The chassis can contain up to 14 blade servers.

**ATTENTION**

To help ensure proper cooling, performance, and system reliability, make sure that each of the module bays on the rear of the MAXDATA PLATINUM BladeBase has a module or filler module installed. When replacing a module, do not operate the MAXDATA PLATINUM BladeBase for more than one minute without either a module or a filler module installed in each module bay.

### Management Module

The standard MAXDATA PLATINUM BladeBase comes with one hot-swap management module. Up to two management modules are supported.

**NOTE**

Only one management module will be active; the second management module provides redundancy.

The management module functions as a service processor and a keyboard/video/mouse (KVM) multiplexor for the blade servers. The management module also configures the MAXDATA PLATINUM BladeBase and I/O modules, configuring such information as the switch IP addresses. The management module provides the following external connections: keyboard, mouse, and video for use by a local console, and one RJ-45 connector for a 10/100 Mbps Ethernet remote management connection.

The service processor in the management module communicates with the service processor in each blade server for such functions as:

- Blade server power-on/off requests
- Blade server error and event reporting
- Blade server requests for keyboard, mouse, and video
- Blade server requests for diskette drive, CD-ROM drive, and USB port

The management module also communicates with the I/O modules, power modules, blower modules, and blade servers to detect presence or absence and any error conditions, sending alerts when required.

### I/O Modules

For blade server communication with the network, your MAXDATA PLATINUM BladeBase supports from one to four hot-swap I/O modules. Table 3 identifies the type of I/O module you can install in each I/O module bay.

Your MAXDATA PLATINUM BladeBase must have at least one hot-swap Ethernet switch module in I/O-module bays 1 or 2. This I/O module provides an internal connection to an integrated Ethernet controller in all the blade servers in the MAXDATA PLATINUM BladeBase. To provide an internal connection for the second integrated Ethernet controller in each blade server, install an Ethernet switch module in the available I/O module bay of the pair (I/O module bay 1 or 2).

Similarly, the MAXDATA PLATINUM BladeBase supports a Fibre Channel I/O module in I/O module bays 3 and 4. Each of these I/O modules provides an internal connection to one of the two network-interface controllers on the I/O expansion options installed on blade servers in the MAXDATA PLATINUM BladeBase. The I/O module must be compatible with the Fibre Channel I/O expansion option on a blade server. The I/O modules you install in I/O module bays 3 and 4 must be Fibre Channel switch modules.

**NOTE**

Because the electromagnetic interference (EMI) restrictions, no more than two SBCEGBESW four-port 1-Gbps Ethernet switch modules can be installed in the MAXDATA PLATINUM BladeBase. You can mix SBCEGBESW switch modules and two other supported SBCEGBESW switch modules to achieve the maximum number of Ethernet switch modules in the MAXDATA PLATINUM BladeBase.

**NOTE**

If you install an I/O expansion option on any blade server, you must install a hot-swap switch module of the same network interface in I/O module bay 3 to obtain network connection 3 for the option; to provide network connection 4 for the option, install a switch module of that same network interface in I/O module bay 4. The switch modules in bays 3 and 4 provide network connections to all the I/O expansion options in the MAXDATA PLATINUM BladeBase.

**IMPORTANT**

The switch modules in I/O module bays 3 and 4 and all blade server I/O expansion options in the MAXDATA PLATINUM BladeBase must use the same network interface. For example, if you install a Fibre Channel I/O expansion option on a blade server, the switch modules you install in I/O module bays 3 and 4 must be Fibre Channel, and all other I/O expansion options installed on blade servers must also be Fibre Channel I/O expansion options.

The following table summarizes the application configuration requirements for each switch module. See "Rear View" (chapter 2) for the location of the I/O module bays on the MAXDATA PLATINUM BladeBase.

**Table 3. Switch and I/O Module Configuration Guide**

| Bay | I/O module function | Permissible switch module |
|---|---|---|
| **1** | Network connection 1 (Ethernet Link 1) for all blade servers in the MAXDATA PLATINUM BladeBase | Ethernet switch module |
| **2** | Network connection 2 (Ethernet Link 2) for all blade servers in the MAXDATA PLATINUM BladeBase | Ethernet switch module |
| **3** | Network connection 3 (from all blade server I/O expansion options in the MAXDATA PLATINUM BladeBase) | One of the following modules:<br>• Ethernet switch module<br>• Switch module of another network-communication standard, such as Fibre Channel<br>**Important:**<br>The module must support the network interface used on the I/O expansion options and must match the type of module installed in bay 4. |
| **4** | Network connection 4 (from all blade server I/O expansion options in the MAXDATA PLATINUM BladeBase) | One of the following modules:<br>• Ethernet switch module<br>• Switch module of another network-communication standard, such as Fibre Channel<br>**Important:**<br>The module must support the network interface used on the I/O expansion options and must match the type of module installed in bay 3. |

1. Install only one switch module, in I/O module bay 1.
2. Enable only one of the Ethernet controllers on the blade server. Make note of the designation that the blade server operating system has for the controller.
3. Ping an external computer on the network connected to the switch module.

If you can ping the external computer, the Ethernet controller you enabled is the upper controller in the blade server and is associated with Ethernet switch 2.

### ✎ NOTE

Enumeration of the Ethernet controllers is operating system dependent. For example, the Ethernet controller located nearer the top of the blade server, whose communications are routed through Ethernet switch module 1, is designated as the first connection (or Local Area Connection) by Microsoft® Windows® 2003, but is designated as the second connection (or eth1) by Red Hat Linux AS 2.1. The Ethernet controller located nearer the bottom of the blade server, whose communications are routed through Ethernet switch module 2, is designated as the second connection (or Local Area Connection 2) by Microsoft® Windows® 2003 but is designated as the first connection (or eth0) by Red Hat Linux AS 2.1. You can verify the designations through your operating system settings or by testing:

### ✎ NOTE

Future switch offerings will be made available by MAXDATA.

## Power Modules

Your MAXDATA PLATINUM BladeBase comes with one pair of 220 V hot-swap power modules in power bays 1 and 2 that provides power to all the BladeBase modules and to blade bays 1 through 6. The MAXDATA PLATINUM BladeBase supports a second pair of power modules in power bays 3 and 4 that provides power to blade bays 7 through 14.

Each pair of power modules is redundant; if a power module fails, the remaining power module continues to supply power. If only one power module of a pair is present, it can be installed in either bay of the pair; there is no redundancy.

To provide true redundant power, BladeBase power modules 1 and 3 must connect to different AC power sources than power modules 2 and 4. If using Power Distribution Units (PDUs), connect BladeBase power modules 1 and 3 to a different PDU than power modules 2 and 4; then, connect each PDU to an AC power source (building power source or service entrance) that is controlled by a separate circuit breaker.

The following table summarizes the application for each power module:

**Table 4. Power Module Functions**

| Bays | Power module function |
|---|---|
| 1 and 2 | Provides power to all the BladeBase modules and to blade bays 1 through 6 |
| 3 and 4 | Provides power to blade bays 7 through 14 |

Power modules are not needed in bays 3 and 4 until you begin installing blade servers and options in blade bays 7 through 14. Each active power module supplies 12 V of power to the blade bays it services.

### NOTE

If you install a blade server that has a storage expansion unit option attached in blade bay 6, the option will use blade bay 7; power modules will be required in power bays 1, 2, 3 and 4.

The BladeBase Chassis support multiple power supplies. These power supplies may require different type power cords. Please refer to the BladeBase Component Enabling document for detailed specifications.

## Blower Modules

Your MAXDATA PLATINUM BladeBase comes with two hot-swap blowers for cooling redundancy. The blower speeds vary depending on the ambient air temperature at the front of the BladeBase. If the ambient temperature is 72×F or below, the BladeBase blowers will run at 30% of their maximum rotational speed, increasing their speed as required to control the internal BladeBase temperature. If the ambient temperature is above 72×F, the blowers will run at 80% of their maximum rotational speed, increasing their speed as required to control the internal BladeBase temperature. If a blower fails, the remaining blower continues to cool the MAXDATA PLATINUM BladeBase and blade servers.

### IMPORTANT

Replace a failed blower as soon as possible to restore cooling redundancy (see the MAXDATA PLATINUM BladeBase Hardware Maintenance Manual and Troubleshooting Guide on the Resource CD for instructions).

### Installing a Module

The following illustration shows how to install a power module, management module, or I/O module in the rear of the MAXDATA PLATINUM BladeBase. See the MAXDATA PLATINUM BladeBase Hardware Maintenance Manual and Troubleshooting Guide on the Resource CD for information about replacing a blower module.

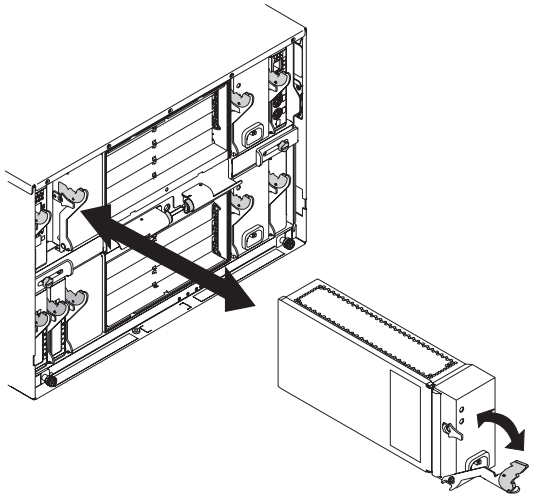


**Figure 6. Installing/Removing a Module**

Before you begin, read the documentation that comes with your I/O module option.

**CAUTION**

Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Complete the following steps to install a module:

**NOTE**

These instructions assume the MAXDATA PLATINUM BladeBase is connected to power.

1. Read chapter 1: "Safety Information", and also "Installation Guidelines" and "Handling Static-Sensitive Devices" in chapter 3.
2. Remove the acoustic module option, if installed, from the rear of the MAXDATA PLATINUM BladeBase. See "Installing and Removing the Acoustic Module Option" (chapter 3) for instructions.
3. Remove the filler module from the bay.
4. Ensure that the release lever on the module is in the open position.
5. Slide the module into the appropriate module bay until it stops.
6. Push the release lever on the front of the module closed.

7. Attach any cables or cords required by the module. See "Input/Output Connectors" (chapter 3) for the location of connectors on the MAXDATA PLATINUM BladeBase. Be sure to route the power cord on a power module through the strain-relief clamp on the power module.
8. Make sure the LEDs on the module indicate that it is operating properly. Verify that:
   - The DC power LED and the AC power LED on each power module are lit.
   - The OK LED on the management module is lit.
   - The OK LED on each switch module is lit.
9. If you have other modules to install, do so now; otherwise, go to step 10.
10. Replace the acoustic module option, if you removed it in step 17.

### Removing a Module

Complete the following steps to remove a power module, management module, or switch module. See the MAXDATA PLATINUM BladeBase Hardware Maintenance Manual and Troubleshooting Guide on the Resource CD for information about replacing a blower module.

**NOTE**

These instructions assume the MAXDATA PLATINUM BladeBase is connected to power.

**CAUTION**

Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

1. Read chapter 1: "Safety Information", and also "Installation Guidelines" and "Handling Static-Sensitive Devices" in chapter 3.
2. Remove the acoustic module option, if installed, from the rear of the MAXDATA PLATINUM BladeBase. See "Installing and Removing the Acoustic Module Option" (chapter 3) for instructions.

**IMPORTANT**

If you are removing a functional power module, make sure before you remove the module that both the AC power LED and the DC power LED on the remaining power module are lit; otherwise, shut down the operating systems and turn off all blade servers that are supported by the power module you are removing before you remove it. (See the documentation that comes with the blade server for instructions for shutting down the blade server operating system and turning off the blade server.)

**IMPORTANT**

If you are removing a management module, you might prefer to stop all management module local and remote sessions before proceeding, to avoid unexpected termination of sessions.

3. Unplug any cables from the module. For a power module, unplug the power cord from the module.
4. Pull the release lever all the way toward the bottom of the module until it stops, as shown in the illustration. The module moves out of the bay approximately 0.6 cm (0.25 inch).
5. Slide the module out of the bay and set it aside. Within 1 minute, place either another module of the same type or a filler module in the bay.
6. If you placed another module in the bay, reconnect any cables or power cords you unplugged in step 3; then, make sure the LEDs on the module indicate that it is operating properly. Verify that:
   - The DC power LED and the AC power LED on each power module are lit.
   - The OK LED on the management module is lit.
   - The OK LED on each I/O module is lit.
7. Replace the acoustic module option, if you removed it in step 2.

# Installing and Removing the Acoustic Module Option

For server environments where noise reduction is essential, you might choose to install the BladeBase Acoustic Attenuation Module option, on your MAXDATA PLATINUM BladeBase. The acoustic module reduces the sound level of the MAXDATA PLATINUM BladeBase to below 6.9 bel using a T-shaped baffle. The acoustic module is installed on the back of the MAXDATA PLATINUM BladeBase, directly covering the blower modules and partially covering the other modules. The system LED panel is replicated on the acoustic module for visibility. Installing an acoustic module increases the length of a MAXDATA PLATINUM BladeBase and requires use of an enterprise rack.

## Installing the Acoustic Module Option

Complete the following steps to install an acoustic module option on the MAXDATA PLATINUM BladeBase:

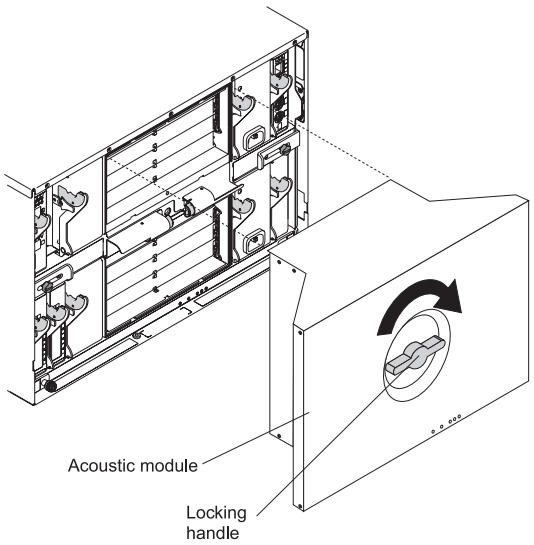



**Figure 7. Installing the Acoustic Module Option**

1. Place the acoustic module over the blower modules, aligning the corners of the acoustic module back with the guides on the chassis, and pushing the shaft into the hole between the blower modules.
2. Rotate the acoustic module handle approximately 2 turns clockwise until it tightens the acoustic module firmly into place.

### Removing the Acoustic Module Option

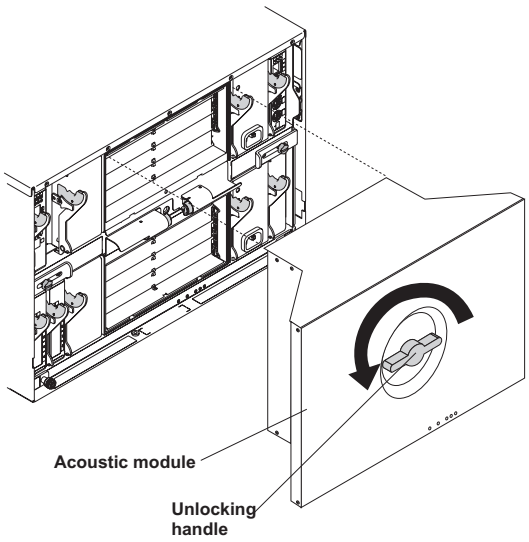



**Figure 8. Removing the Acoustic Module Option**

Complete the following steps to remove an acoustic module option from the MAXDATA PLATINUM BladeBase:

1. Rotate the acoustic module handle approximately 2 turns counter-clockwise until it stops.
2. Carefully pull the acoustic module away from the MAXDATA PLATINUM BladeBase and set it aside.

## Installing and Removing Blade Servers

Your MAXDATA PLATINUM BladeBase supports up to 14 high-performance blade servers. Each blade server is an enclosure that contains microprocessors, memory, a control chipset, an I/O bus, Ethernet controllers, hard disk drives, customer interface controls and connectors for expansion options. The blade server receives its power, network connection, and I/O devices (CD-ROM and diskette drives, keyboard, mouse, and video ports, USB port, remote monitoring port) from the MAXDATA PLATINUM BladeBase, reducing the server's physical size and reducing the number of cables needed.

### Blade Server Expansion Options

Some blade servers contain connectors for options that add capabilities to the blade server. You can add these options before installing the blade server in the MAXDATA PLATINUM BladeBase.

### I/O Expansion Option

Some blade servers have connectors for adding an I/O expansion option. The MAXDATA PLATINUM BladeBase routes network communication signals from the I/O expansion option to switch modules 3 and 4 on the MAXDATA PLATINUM BladeBase. The I/O expansion option is attached directly to the blade server but does not occupy an additional blade bay

**NOTE**

If an I/O expansion option is installed on any blade server, switch modules for that network interface must be installed in I/O module bays 3 or 4 on the MAXDATA PLATINUM BladeBase.

### Storage-Expansion Option

Some blade servers have a connector for adding a SCSI expansion unit. The storage expansion unit supports up to two hot-swap SCSI hard disk drives. The expansion option is attached directly to the blade server; the blade server and expansion option together use two blade bays.

### Installing a Blade Server

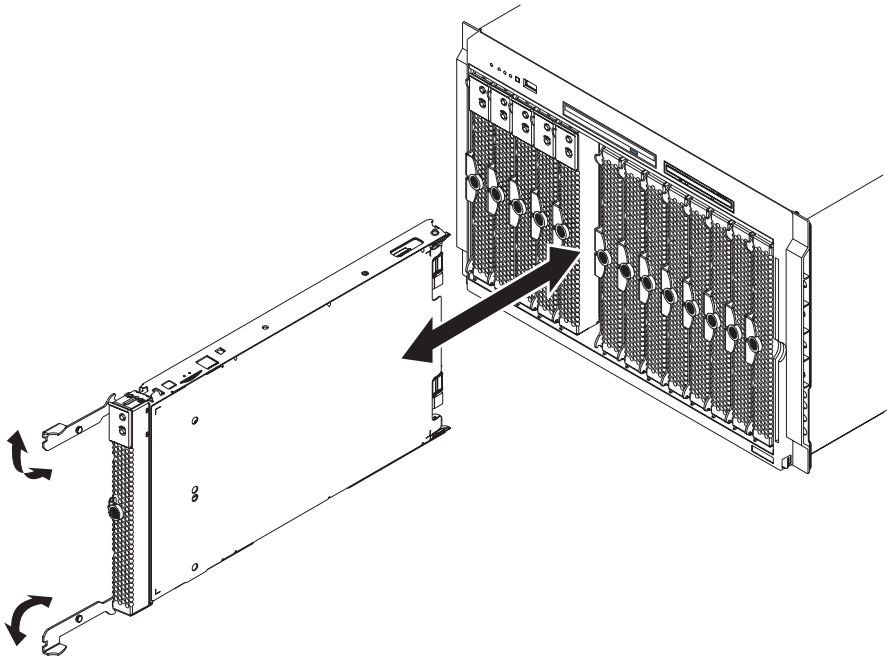


**Figure 9. Installing/Removing a Blade Server**

Complete the following steps to install a blade server in the MAXDATA PLATINUM BladeBase.

1. Read chapter 1: "Safety Information", and also "Installation Guidelines" and "Handling Static-Sensitive Devices" in chapter 3.
2. Install any options needed, such as disk drives, an I/O expansion card, or memory in the blade server. See the documentation that comes with the blade server for instructions.
3. Select the bay for the blade server.
4. Remove the filler blade from the bay and store in a safe place.

**CAUTION**

Hazardous energy is present when the blade is connected to the power source. Always replace the blade cover before installing the blade.

**CAUTION**

To help ensure proper cooling, performance, and system reliability, make sure that each of the blade bays on the front of the MAXDATA PLATINUM BladeBase has a blade server, expansion unit, or filler blade installed. Do not operate the MAXDATA PLATINUM BladeBase for more than one minute without either a blade server, expansion unit, or filler blade installed in each blade bay.

**NOTE**

If a blade server has a SCSI storage expansion option installed on it, the blade server and expansion option require two adjacent blade bays.

**NOTE**

If you install a blade server or option in bay 7 through 14, you must install power modules in power bays 3 and 4.

5. Ensure that the release levers on the blade server are in the open position.
6. Slide the blade server into the bay until it stops. The spring-loaded doors that cover the bay opening move out of the way as you insert the blade server.
7. Push the release levers on the front of the blade server until they are closed.
8. Turn on the blade server by pressing the power-control button on the blade server control panel. See the documentation that comes with the blade server for more instructions.
9. Verify that the power LED on the blade server control panel is lit, indicating that the blade server is receiving power.
10. If desired, write identifying information on one of the user labels that come with the blade server; then, place the label on the BladeBase bezel just below the blade server, as shown in the following illustration.

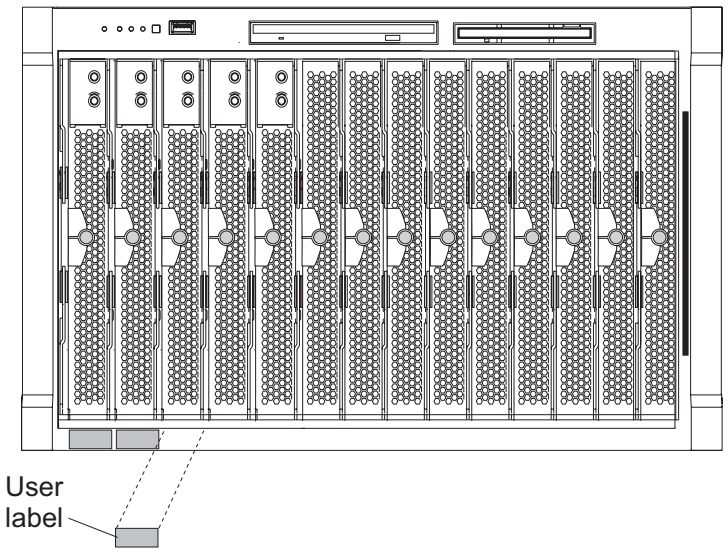



**Figure 10. Placing A User Label**

11. If you have other blade servers to install, do so now.

**IMPORTANT**

Do not place the label on the blade server or in any way block the ventilation holes on the blade server.

**IMPORTANT**

Reinstalling a blade server into a different bay than the one from which it was removed could have unintended consequences. Some configuration information and update options are established according to bay number. You might need to reconfigure the blade server.

If this is the initial installation for a blade server in the MAXDATA PLATINUM BladeBase, you need to configure the blade server with the blade server Configuration/Setup Utility program and install the blade server operating system. See the documentation that comes with the blade server for instructions.

### Removing a Blade Server

Figure 9 shows how to remove a blade server from the MAXDATA PLATINUM BladeBase.

**ATTENTION**

To maintain proper system cooling, do not operate the MAXDATA PLATINUM BladeBase for more than one minute without either a blade server or a filler blade installed in each blade bay. If you fail to replace a blade server or filler blade within one minute, system performance might be affected.

**ATTENTION**

Make note of the bay number. Some configuration information and update options are established according to bay; if you reinstall the blade server in a different bay than the one from which it was removed, unintended consequences could occur.

Complete the following steps to remove a blade server from the MAXDATA PLATINUM BladeBase.

1. Read chapter 1: "Safety Information", and also "Installation Guidelines" and "Handling Static-Sensitive Devices" in chapter 3.

**NOTE**

Improper shutdown of a blade server will not allow that blade server to be restarted using Wake on LAN.

2. Shut down the blade server operating system; then, press the blade server power-control button (behind the blade server control panel door) to turn off the blade server. Wait at least 30 seconds until the drives stop spinning, before proceeding to the next step.
3. Press on the green button on the front of the blade to cause the levers to release. Open the two release levers as shown in the illustration. The blade server moves out of the bay approximately 0.6 cm (0.25 inch).
4. Pull the blade server out of the bay. Spring-loaded doors move down to cover the bay temporarily.
5. Place either a filler blade or another blade server in the bay within one minute. The spring-loaded doors will move out of the way as you insert the blade server or filler blade.

### Completing the Installation

After you connect the cables to the modules and route the cables (if necessary, see the Rack Installation Instructions for information about routing the cables), start the MAXDATA PLATINUM BladeBase (if it is not already started) and verify that it is working properly, as follows:

1. Start the MAXDATA PLATINUM BladeBase by connecting the power-module power cords to a 220 V power source (a 220 V power distribution unit (PDU) that is connected to a 220 V AC power outlet).
2. Make sure the LEDs on the modules indicate that they are operating properly. Verify that:
   - The DC power LED and the AC power LED on each power module are lit.
   - The OK LED on each management module is lit.
   - The OK LED on each switch module is lit.
3. Make sure the Power-on LED on each blade server is lit, either steady or blinking.

See chapter 4: "Power On/Off the MAXDATA PLATINUM BladeBase" and chapter 5: "Components, Controls, and LEDs" for information about starting the MAXDATA PLATINUM BladeBase and the location of the LEDs on the modules.

# Input/Output Connectors

The MAXDATA PLATINUM BladeBase has the following ports:

- One video
- One PS/2 keyboard
- One PS/2 mouse
- One Universal Serial Bus (USB) on the front of the MAXDATA PLATINUM BladeBase
- One 10/100 Mbps Ethernet for remote console and management
- Four 10/100/1000 Mbps Ethernet on the Ethernet switch module that is required for the MAXDATA PLATINUM BladeBase

The following illustration shows the I/O connectors on the rear of your MAXDATA PLATINUM BladeBase.

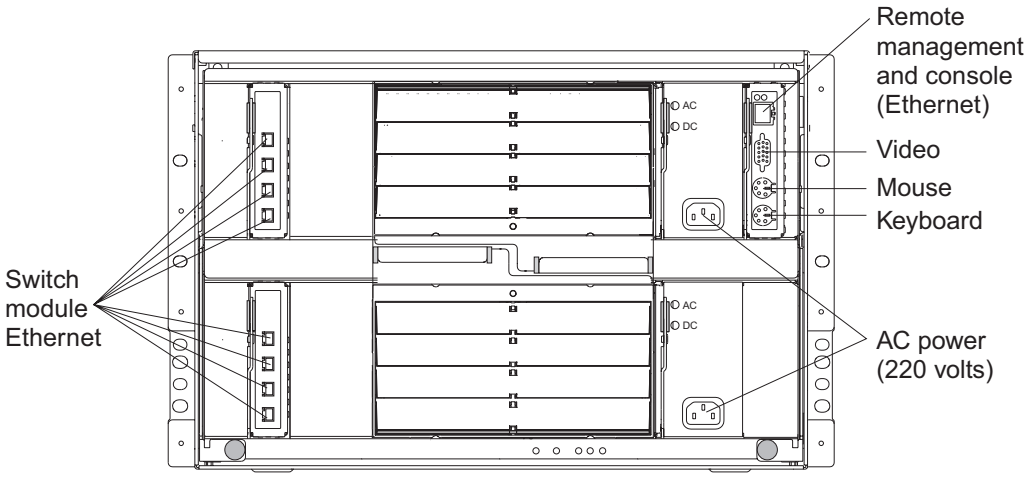



**Figure 11. Input/Output Connectors**

## Video Connector

Each BladeBase management module contains one standard video connector. The integrated video controller on each blade server is compatible with SVGA and VGA and communicates through this video port.

Use this connector to connect a video monitor to the MAXDATA PLATINUM BladeBase.

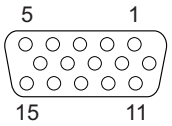



**Figure 12. Video Connector**

## Keyboard Connector

Each BladeBase management module contains one PS/2-style keyboard connector. Use this connector to connect a PS/2 keyboard to the MAXDATA PLATINUM BladeBase.

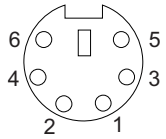



**Figure 13. Keyboard Connector**

## Mouse Connector

Each BladeBase management module contains one PS/2-style mouse connector. Use this connector to connect a PS/2 mouse to the MAXDATA PLATINUM BladeBase.

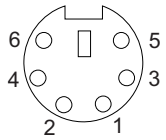



**Figure 14. Mouse Connector**

## Universal Serial Bus Connector

Each BladeBase has one Universal Serial Bus (USB) version 1.1 connector on the front of the MAXDATA PLATINUM BladeBase.

Use the USB connector to connect a USB device other than a mouse or keyboard to the MAXDATA PLATINUM BladeBase. USB technology transfers data at up to 12 MB per second (Mbps) with a maximum of 127 devices and a maximum signal distance of 5 meters (16 ft.) per segment. Using Plug and Play technology, USB devices are configured automatically.

The following illustration shows a USB connector.

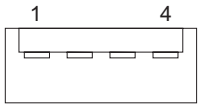



**Figure 15. Universal Serial Bus Connector**

Use a USB cable to connect a device to a USB connector. If you need to connect more USB devices than the MAXDATA PLATINUM BladeBase has USB connectors, use a USB hub to connect additional devices.

If you connect a USB keyboard that has a mouse port, the keyboard emulates a mouse, and you cannot disable the mouse settings in the blade server Configuration/Setup Utility program.

### Switch-Module Ethernet Connector

Each Ethernet switch module contains four Ethernet connectors.

Connect a Category 3, 4, or 5 unshielded twisted-pair cable to this connector. The 100BASE-TX and 1000BASE-T Fast Ethernet standards require Category 5 or higher.

The following illustration shows an Ethernet connector that is on an Ethernet switch module.

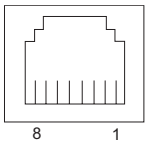



**Figure 16. Switch-Module Ethernet Connector**

### Remote Management and Console Ethernet Connector

Your BladeBase management module contains one 10/100 Mbps Ethernet port that provides the remote connection to the network management station on the network.

Use this port for remote management and remote console.

The network management station, through this port, can access control functions running in the service processor on each blade server or within each switch module. However, it cannot use this port to communicate with application programs running in the blade servers. The network management station must direct those communications through a network connected to the external ports in the switch modules.

The following illustration shows the Ethernet connector that is on the management module.

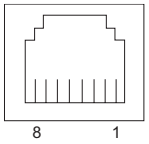



**Figure 17. Remote Management and Console Ethernet Connector**

### I/O Module Connectors

See the documentation that comes with each I/O module for a description of the connectors on the I/O module.

# 4 Power On/Off the MAXDATA PLATINUM BladeBase

## Starting the MAXDATA PLATINUM BladeBase

The MAXDATA PLATINUM BladeBase does not have a power switch. To start the MAXDATA PLATINUM BladeBase, plug one end of each power cord into a power module on the rear of the MAXDATA PLATINUM BladeBase, and the other end of each power cord into a 220-volt power distribution unit (PDU) that is plugged into an appropriate electrical outlet.

After you start the MAXDATA PLATINUM BladeBase, it has AC power. The blade servers in the MAXDATA PLATINUM BladeBase are connected to AC power but are not turned on. Press the power-control button on the front of each blade server to obtain full power for the blade server and start its operating system (see the documentation for the blade server for information about turning on the blade server). Once the operating system (OS) is installed, be sure to shutdown the OS before turning off the blade server, to avoid damaging the hard disk drives.

**IMPORTANT**

For the LEDs on each system LED panel to function correctly, be sure to install the management module before turning on the MAXDATA PLATINUM BladeBase. See "Installing Options" (chapter 3) for instructions for installing the management module.

**NOTE**

If a power failure occurs, the MAXDATA PLATINUM BladeBase restarts automatically when power is restored.

**NOTE**

The blade server power button turns the blade server on or off if local power control has not been disabled through the management module.

**NOTE**

The blade server power button turns on the blade server only if the green power light on the blade server is flashing slowly. If the light flashes rapidly, the blade server has not yet synchronized with the management module and the power button will have no effect.

## Shutting Down the MAXDATA PLATINUM BladeBase

You can shut down the MAXDATA PLATINUM BladeBase by turning off the blade servers and disconnecting the MAXDATA PLATINUM BladeBase from the power source.

Complete the following steps to shut down the MAXDATA PLATINUM BladeBase:

1. Refer to your blade server operating system documentation for the proper procedure to shut Press the power-control button on the front of each blade server.
2. Wait at least 30 seconds for the blade server drives to stop spinning.
3. Disconnect all power cords on the MAXDATA PLATINUM BladeBase from all the power modules. down the operating system in the blade servers; then, shut down each operating system.

**CAUTION**

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

**NOTE**

After you disconnect the MAXDATA PLATINUM BladeBase from power, wait at least 5 seconds before you connect the MAXDATA PLATINUM BladeBase to power again.

# 5 Components, Controls, and LEDs

This section describes the components, controls and light-emitting diodes (LEDs) on the MAXDATA PLATINUM BladeBase.

**NOTE**

The illustrations in this document might differ slightly from your hardware.

## Front View

This section identifies the components, controls, and LEDs on the front of your MAXDATA PLATINUM BladeBase.

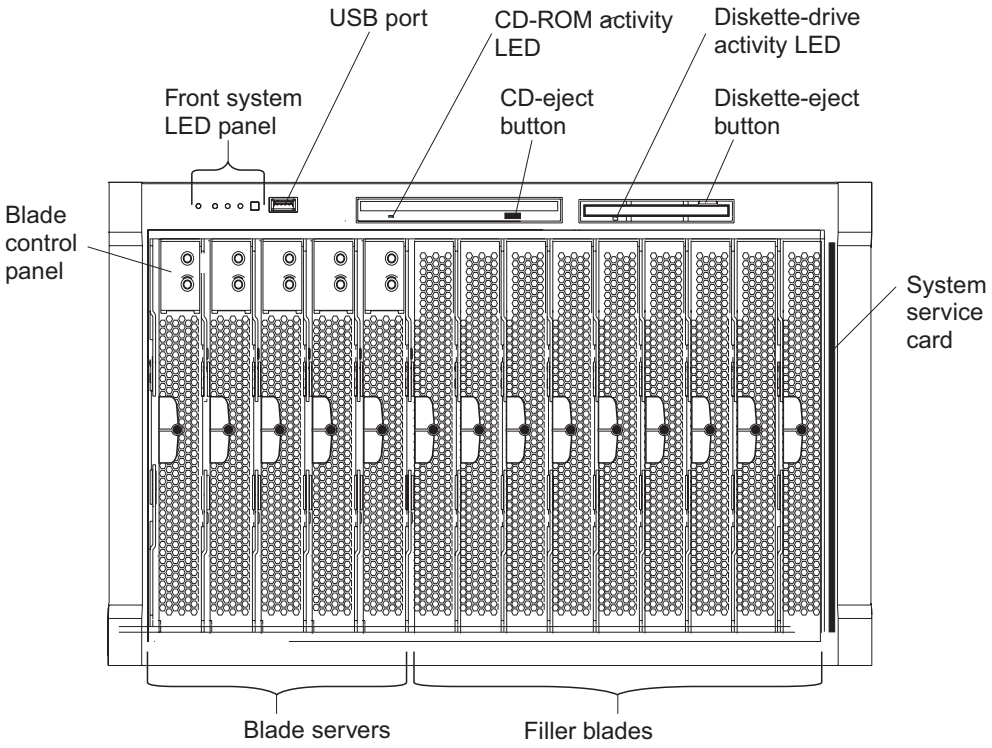



**Figure 18. MAXDATA PLATINUM BladeBase Front View**

**Table 5. MAXDATA PLATINUM BladeBase Front Elements**

| Element | Description |
|---|---|
| **Front system LED panel** | The LEDs on this panel provide status information for your MAXDATA PLATINUM BladeBase. See “System LED Panel” (chapter 5) for more information. |
| **USB port** | Use this port to attach an external USB device. |
| **CD-ROM drive activity LED** | When this LED is lit, it indicates that the CD-ROM drive is in use. |
| **CD-eject button** | Press this button to release a CD from the drive. |
| **Diskette-drive activity LED** | When this LED is lit, it indicates that the diskette drive is in use. |
| **Diskette-eject button** | Press this button to release a diskette from the drive. |
| **Blade control panel** | This panel contains indicators and controls for the blade server. See the documentation that comes with your blade server for information about the blade control panel. |
| **System service card** | This card contains system service instructions and a writable area for your use. |

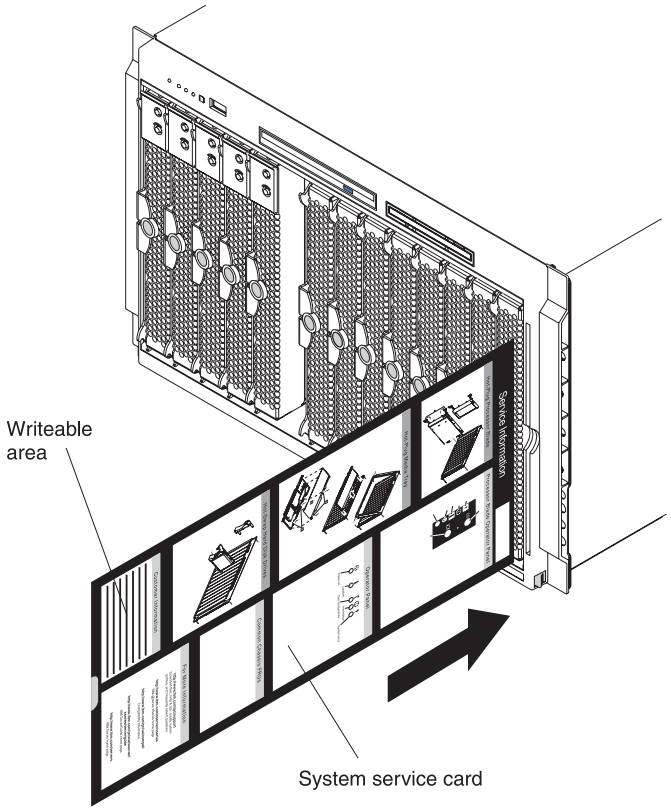



**Figure 19. System Service Card**

## Rear View

This section identifies the components and indicators on the rear of your MAXDATA PLATINUM BladeBase.

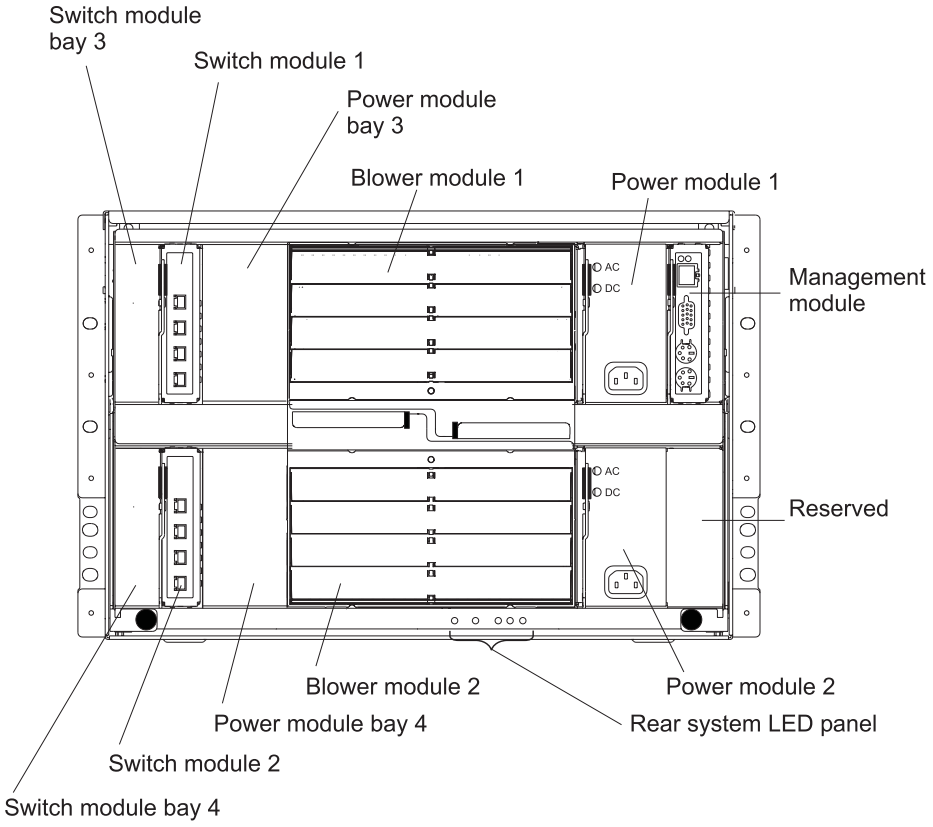



**Figure 20. Rear View**

## Rear System LED Panel

The LEDs on this panel provide status information for your MAXDATA PLATINUM BladeBase. These LEDs duplicate the LEDs in the front system LED panel. See "System LED Panel" (chapter 5), for more information about these LEDs.

## Blower Module LEDs

This amber LEDs lit and stay lit when an error has been detected in the blower. The system error LED on the MAXDATA PLATINUM BladeBase LED panels will also be lit.

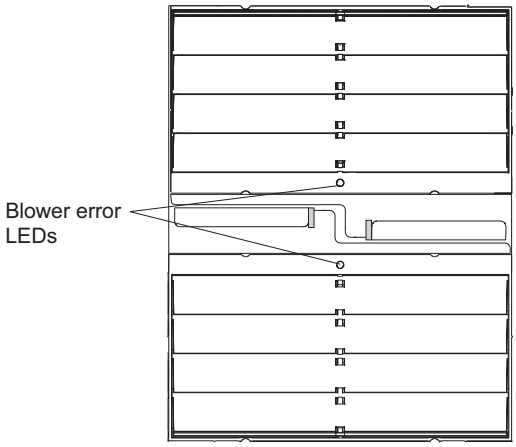



**Figure 21. Blower Module**

## Ethernet Switch Module LEDs

The LEDs on the switch module indicate the condition of the Ethernet switch and the links to the network. For additional information, see the "Light Path Diagnostics" section in the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA BladeBase Resource CD.

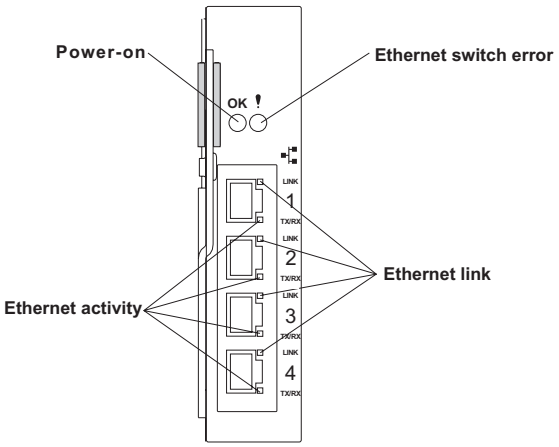



**Figure 22. Ethernet Switch Module**

**Table 6. Ethernet Switch Module LEDs**

| LED | Description |
|---|---|
| **Power-on** | When this green LED is lit, it indicates that the switch module has power. |
| **Ethernet switch error** | When this amber LED is lit, it indicates that an error has been detected somewhere in the switch module. The system error LED on each of the MAXDATA PLATINUM BladeBase LED panels is also lit. |
| **Ethernet link** | When this green LED is lit, there is an active connection through the port to the network. |
| **Ethernet activity** | When this green LED is flashing, it indicates that there is activity through the port over the network link |

## Power Module LEDs

These green LEDs indicate the condition of the power module. For additional information, see the "Light Path Diagnostics" section in the BladeBase Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA BladeBase Resource CD.

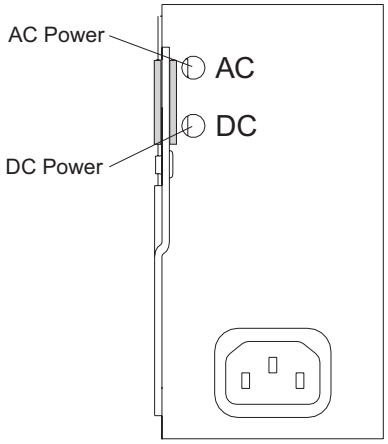



**Figure 23. Power Module LEDs**

**Table 7. Power Module LEDs**

| LED | Description |
|---|---|
| **AC power** | When this LED is lit, AC input to the power module is present and within specifications. During typical operation, both the AC and DC power LEDs are lit. For any other combination of LEDs, see the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA BladeBase Resource CD. |
| **DC power** | When this LED is lit, the DC output from the power module to the other components and blade servers is present and within specifications. During typical operation, both the AC and DC power LEDs are lit. For any other combination of LEDs, see the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA BladeBase Resource CD. |

# Management Module LEDs

These LEDs provide status information about the management module and remote management connection. For additional information, see the "Light Path Diagnostics" section in the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA PLATINUM BladeBase Resource CD.

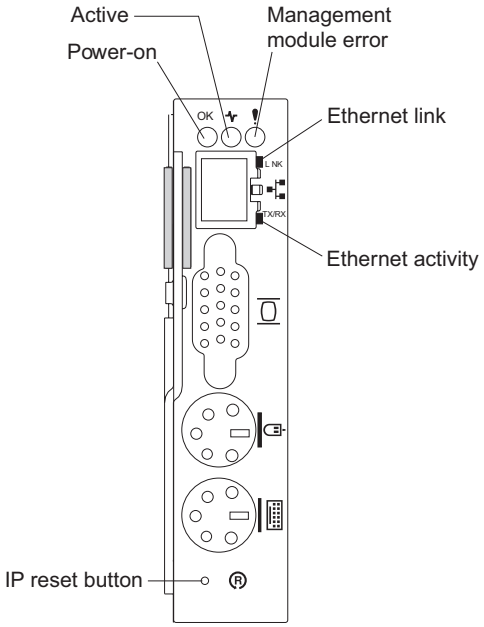



**Figure 24. Management Module LEDs**

**Table 8. Management Module LEDs**

| LED | Description |
|---|---|
| **Power-on** | When this green LED is lit, the management module has power. |
| **Active** | When this green LED is lit, it indicates that this management module is actively controlling the MAXDATA PLATINUM BladeBase. |
| **Management module error** | When this amber LED is lit, it indicates that an error has been detected somewhere on this management module. When this indicator is lit, the system error LEDs on the front and rear of the MAXDATA PLATINUM BladeBase LED panels are also lit. |
| **Ethernet link** | When this green LED is lit, there is an active connection through the port to the network. |
| **Ethernet activity** | When this green LED is flashing, it indicates that there is activity through the port over the network link. |

## Management Module IP Reset Button

See figure 24. Do not press this button unless you intend to erase your configured IP addresses for the management module and lose connection with the remote management station, the I/O modules and the blade servers. If you press this button, you will need to reconfigure the management module settings.

Press this recessed button to reset the IP configuration of the management module network interfaces (Ethernet 1, Ethernet 2, gateway address, and so forth) to the factory defaults and then restart the management module.

Use a straightened paper clip to press the button.

A newly-installed (out-of-the-box) MAXDATA PLATINUM BladeBase tries to locate a DHCP server on the network before it will default to the factory-configured static IP address in the management module. This is the initial configuration setting. When there is no DHCP server on the network the MAXDATA PLATINUM BladeBase is connected to, it takes two minutes before the management module uses the default (static) IP address.

When the DHCP search times out and the management module uses the static IP address, you can change the management module configuration so that it will not attempt to locate a DHCP server (go to **MM Control > Network Interfaces > External Network Interface > DHCP**, select **Static only**).

## System LED Panel

The following illustration shows the status LEDs on the system LED panels on the front and rear of the MAXDATA PLATINUM BladeBase.

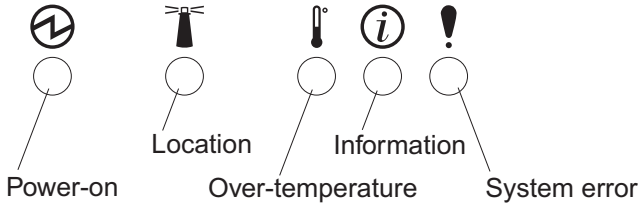



**Figure 25. System LED Panel**

### ⚠ ATTENTION

If the power-on LED is off, it does not mean there is no electrical current present in the MAXDATA PLATINUM BladeBase. The LED might be burned out. To remove all electrical current from the MAXDATA PLATINUM BladeBase, you must unplug all power cords from all power modules.

### ✏ NOTE

You can turn off the location LED and the information LED through the management module web interface.

**Table 9. System LED Panel LEDs**

| LED | Description |
|---|---|
| **Power-on** | When this green LED is lit, power is present in the MAXDATA PLATINUM BladeBase. When this LED is off, the power subsystem, the AC power, or the LED has failed, or the management module is not present or not functioning. |
| **Location** | When this blue LED is lit or flashing, it has been turned on by the system administrator, to aid in visually locating the MAXDATA PLATINUM BladeBase. If a blade server requires attention, the location LED on the blade server usually will also be lit. After the MAXDATA PLATINUM BladeBase has been located, you can have the system administrator turn off the location LED. |
| **Over-temperature** | When this amber LED is lit, the temperature in the MAXDATA PLATINUM BladeBase exceeds the temperature limits or a blade server reports an over-temperature condition. The MAXDATA PLATINUM BladeBase might have already taken corrective action, such as increasing the blower speed. This LED turns off automatically when there is no longer an over-temperature condition. |
| **Information** | When this amber LED is lit, a noncritical event has occurred that requires attention, such as the wrong I/O module inserted in a bay or power demands that exceed the capacity of power modules currently installed. The event is recorded in the event log. Check the LEDs on the MAXDATA PLATINUM BladeBase and the blade servers to isolate the component (see the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA PLATINUM BladeBase Resource CD for instructions on viewing the event log and checking the LEDs). After the situation is handled, have the system administrator turn off the information LED. |
| **System error** | When this amber LED is lit, it indicates that a system error has occurred, such as a failed module or a system error in a blade server. An LED on one of the components or on a blade server is also lit to further isolate the error. (For more information, see the Hardware Maintenance Manual and Troubleshooting Guide on the MAXDATA PLATINUM BladeBase Resource CD.) |

# 6 Rack Installation Instructions

## Rack Installation Safety Guidelines

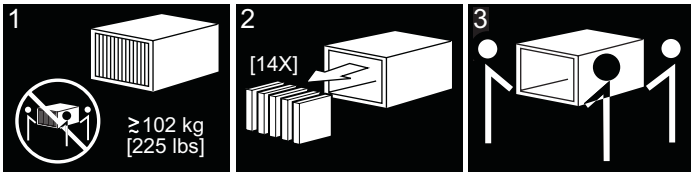
Install the MAXDATA PLATINUM BladeBase in a rack before installing any blade servers in the chassis. If your MAXDATA PLATINUM BladeBase has blade servers already installed, remove them first. Blade servers are installed from the front of the chassis.

Review the documentation that comes with your rack cabinet for safety and cabling information. Before installing your MAXDATA PLATINUM BladeBase unit in a rack cabinet, review the following guidelines:

- Three or more people are required to install the device in a rack cabinet, after all the blade servers are removed.
- Do not leave any unused U space within a rack cabinet open. Blank filler panels must be used to prevent recirculation of warm air.
- Install your MAXDATA PLATINUM BladeBase unit only in a rack cabinet with perforated front and rear doors.
- Plan the device installation starting from the bottom of the rack cabinet.
- Install the heaviest devices in the bottom of the rack cabinet.
- Do not extend more than one device out of the rack cabinet at the same time.
- Remove the rack doors and side panels to provide easier access during installation.
- Connect the MAXDATA PLATINUM BladeBase unit to a 220 V power distribution unit (PDU) or to a properly grounded 220 V power outlet.
- Do not overload the power outlet when installing multiple devices in the rack cabinet.
- Install your MAXDATA PLATINUM BladeBase unit in a rack that meets the following requirements:
  - Minimum depth of 70 mm (2.76 in.) between the front mounting flange and inside of the front door.
  - Minimum depth of 157 mm (6.18 in.) between the rear mounting flange and inside of the rear door.
  - Minimum depth of 559 mm (22 in.) and maximum depth of 762 mm (30 in.) between the front and rear mounting flanges.

**⚠ CAUTION**

To avoid personal injury, before lifting the unit, remove all the blades to reduce the weight.



**CAUTION**

Use safe practices when lifting.

≥18 kg [39.7 lbs]

≥32 kg [70.5 lbs]

≥55 kg [121.2 lbs]

**CAUTION**

Do not place any object weighing more than 50 kg (110 lb) on top of rack-mounted devices.

>50 kg [110 lbs]

**CAUTION**

If you install a strain-relief bracket option over the end of the power cord that is connected to the device, you must connect the other end of the power cord to an easily accessible power source.

## Items Needed for Installing the MAXDATA PLATINUM BladeBase in a Rack

Figure 26 shows the items that you need to install the MAXDATA PLATINUM BladeBase unit in your rack cabinet. If any items are missing or damaged, contact your place of purchase.

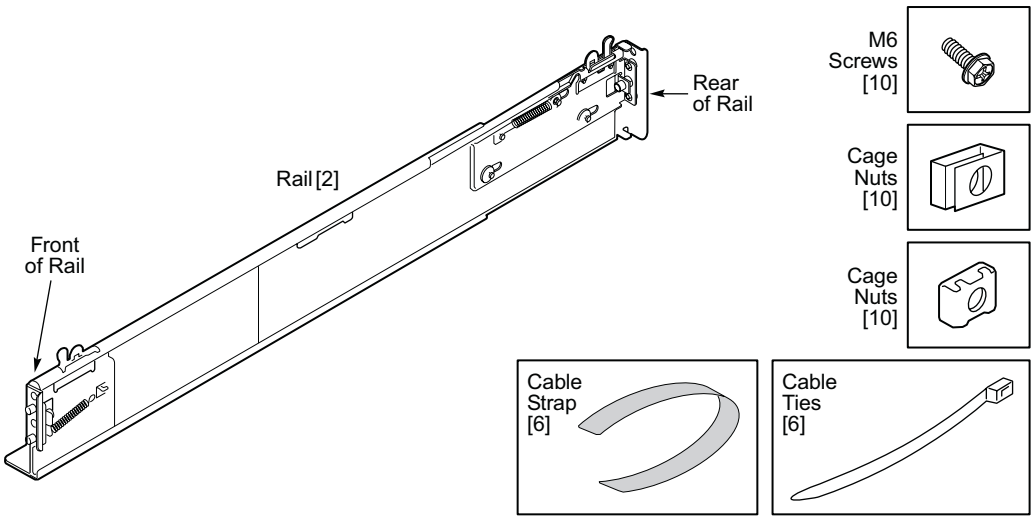
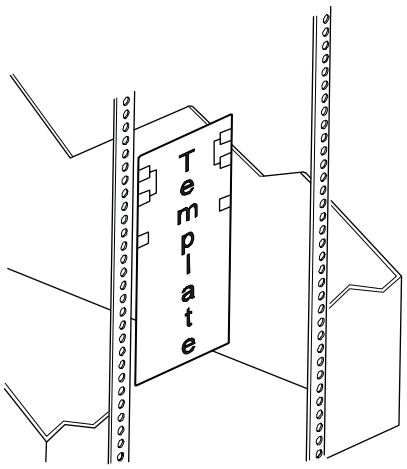



**Figure 26. Items Needed for Installing the MAXDATA PLATINUM BladeBase In A Rack**

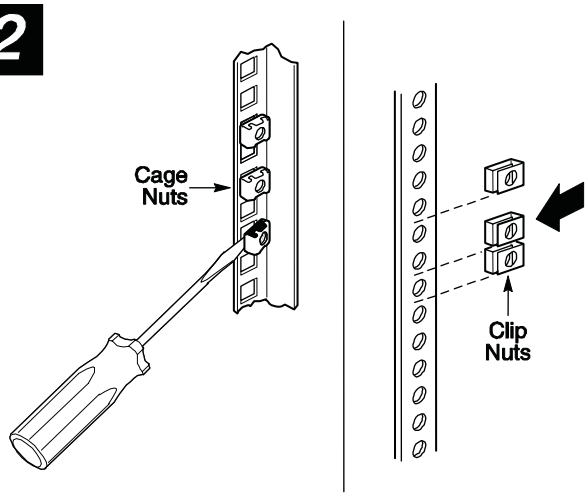
## Step by Step Installation Instructions

**1**




Position the template on the rack so that the edges of the template do not overlap any other devices to be installed. Line up and select the holes on the front and rear of the rack in the locations indicated by the arrows on the attached template.

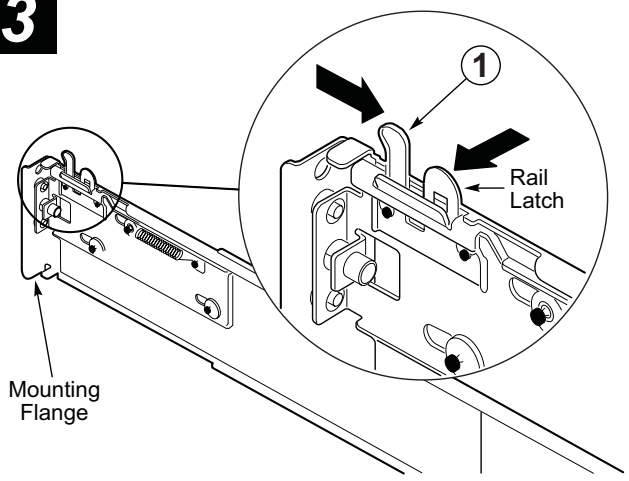
**2**




Use a screwdriver to install the cage nuts, or the clip nuts, as required for your rack, into the selected holes.

**NOTE:** For racks with square holes, use the cage nuts. For racks with round holes, use clip nuts.

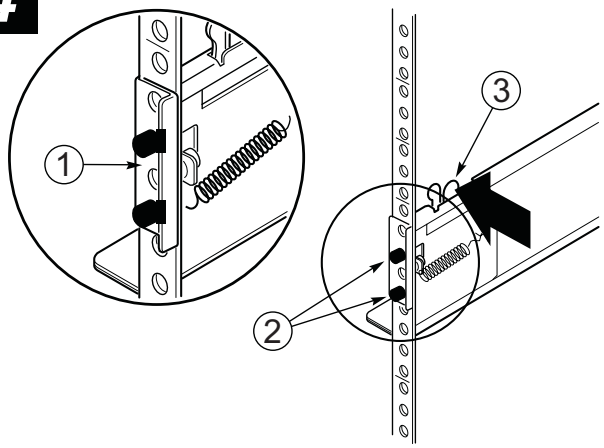
**3**




A set of rail pins and a mounting flange are on each end of the rail. Position the rail as shown in the illustration; then, pull back on the finger pull **(1)** while pressing in on the rail latch.

Release the rail latch and let it click into place, locking the rail pins in the open position. Open the rail pins on the opposite end of the rail; then, repeat the process on the remaining rail.

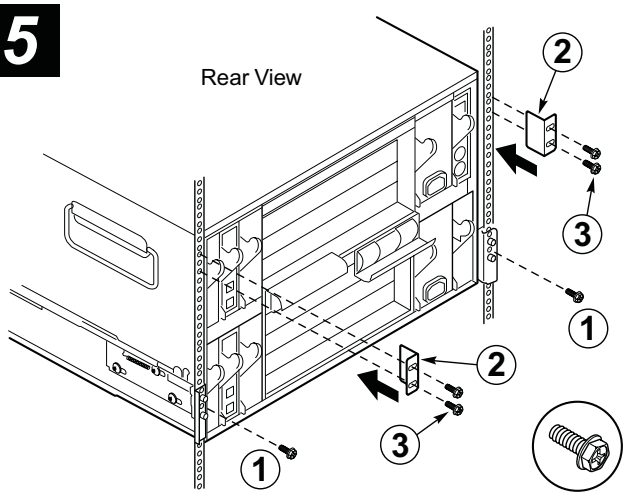
**4**




Fully extend the rail and fit the mounting flange **(1)** on each end of the rail around the rack cabinet rail, aligning the rail pins **(2)** with the holes in the rack cabinet rail. Release the rail pins by pressing on the rail latches **(3)** on each end, allowing the rail pins to pass through the rail and the mounting flange. Repeat these steps for the remaining rail.

**NOTE:** Make sure that the rail pins protrude through the mounting flanges and the rack cabinet rails.

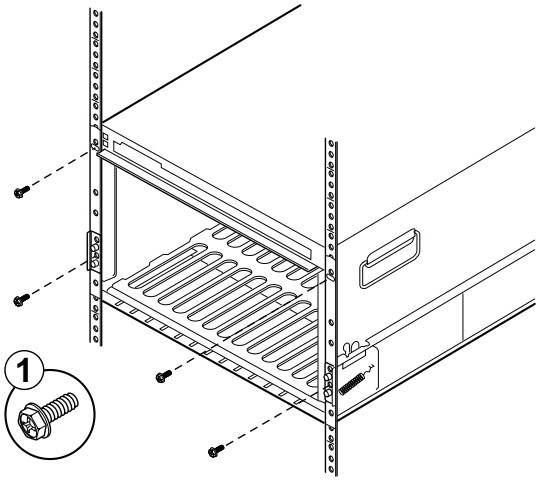
**5**




**NOTE:** Before installing a preconfigured MAXDATA PLATINUM BladeBase unit, be sure to label the blade servers and MAXDATA PLATINUM BladeBase unit bays to ensure that you reinstall the blade servers in the correct bays.

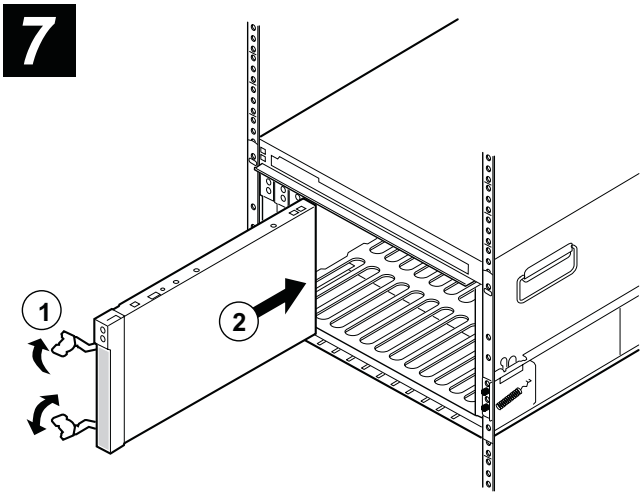
Then, remove all of the blade servers from the MAXDATA PLATINUM BladeBase unit. Slide the MAXDATA PLATINUM BladeBase unit into the rack. Insert an M6 screw **(1)** in the center hole of each rail on the rear of the rack cabinet. Insert the stabilizer clips **(2)** and the four M6 screws **(3)** to secure the stabilizer clips on each side.

**6**




Insert four M6 screws **(1)** in the front of the MAXDATA PLATINUM BladeBase Unit to secure it to the rack cabinet and the front Mounting flanges on the rails.

**7**



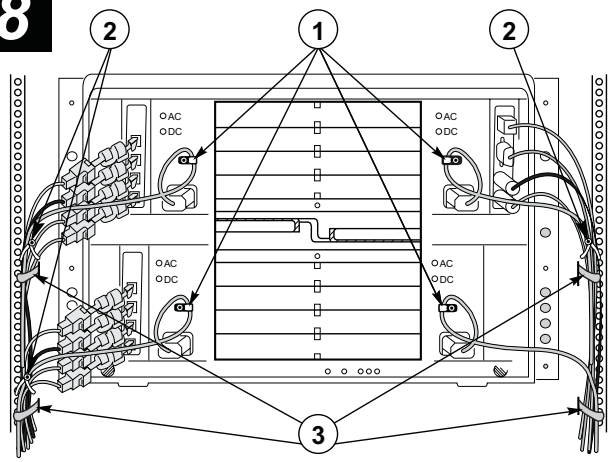

Reinstall the blade servers in the MAXDATA PLATINUM BladeBase unit. Be sure to reinstall the blade servers in the same bays from which they were removed.

Make sure the release levers on the blade servers are in the open position **(1)** before you slide them into the MAXDATA PLATINUM BladeBase **(2)** unit.

**MAXDATA PLATINUM BladeBase Unit Power-Supply Redundancy**

- Power supplies in bays 1 and 2 supply power for blade bays 1 through 6
- Power supplies in bays 3 and 4 supply power for blade bays 7 through 14

**8**




Attach the power cords and other cables to the rear of the MAXDATA PLATINUM BladeBase unit. Route the power cables through the strain relief clamps **(1)**; then, route all the cables as shown in the illustration.

**NOTE:** Allow slack in all cables to avoid tension in the cables and to allow you to remove adjacent modules without uncabling the MAXDATA PLATINUM BladeBase unit.

Use the cable ties and cable straps to secure the cables together and to the rack cabinet rails.

**System Power Redundancy**

To maintain power redundancy at the system level, connect the power supplies as follows:

- Connect the power supplies in bays 1 and 3 to one building power source or service entrance.
- Connect the power supplies in bays 2 and 4 to a separate building power source or service entrance.

To remove the MAXDATA PLATINUM BladeBase unit from the rack, reverse these instructions. Store this information with your MAXDATA PLATINUM BladeBase documentation for future use.